

FILED
U.S. DISTRICT COURT
DISTRICT OF WYOMING

JUN 13 2005

Stephan Harris, Clerk
Cheyenne

**UNITED STATES DISTRICT COURT
DISTRICT OF WYOMING**

BIODIVERSITY CONSERVATION
ALLIANCE and SIERRA CLUB,

Plaintiffs,

v.

MOUNTAIN CEMENT COMPANY,

Defendant.

Case No. 04CV 361-B

**EXPERT REPORT OF JONATHAN S. SHEFFTZ
ON BEHALF OF PLAINTIFFS**

1. Summary of Opinion

The federal Clean Air Act (the "Act"), 42 U.S.C. § 7413(e), sets forth seven specific penalty assessment criteria that a Court should consider in determining the proper amount of a civil penalty to be assessed:

- (1) the size of the business;
- (2) the economic impact of the penalty on the business;
- (3) the violator's full compliance history and good faith efforts to comply;
- (4) the duration of the violation as established by any credible evidence (including evidence other than the applicable test method);
- (5) payment by the violator of penalties previously assessed for the same violation;
- (6) the economic benefit of noncompliance; and
- (7) the seriousness of the violation.

Counsel for the plaintiffs in this case has asked me to provide an expert opinion regarding three of these criteria: the size of the business, the economic impact of a civil penalty payment, and the economic benefit that Mountain Cement Company and its parent Eagle Materials may have gained because of environmental noncompliance with applicable opacity limits at the Laramie cement plant.

My economic benefit analysis is based in large part on the compliance cost estimates that Mr. Bill Wilson, P.E., has developed, which in turn are based upon the selection of a baghouse as the most cost-effective and appropriate control equipment required to eliminate Mountain Cement's on-going opacity violations at Kiln #2. I estimate that Mountain Cement and its parent Eagle Materials obtained an economic benefit of approximately \$4.4 million over the last five-and-one-half years by not installing a baghouse at Kiln #2. I may wish to supplement this report as additional information becomes available to me.

Regarding the economic impact of a penalty, my opinion is that Mountain Cement can afford to pay a figure significantly larger than my estimate of the economic benefit of its noncompliance. Indications of the size of its parent Eagle Materials include total assets of about \$780 million and annual revenues of over \$600 million. Detailed financial statements are not publically available for the Mountain Cement subsidiary, but annual cement revenues are about \$125 million, and the Laramie plant accounts for almost one third of the total cement capacity that Eagle Materials owns.

2. Basis for Opinion

My opinion is based on my expertise in economic and financial analysis, experience with economic benefit calculation and economic-impact/ability-to-pay assessment in environmental noncompliance cases, independent research for certain publicly available data, compliance-related data received from counsel, and the information provided by, and attached to, Mr. Bill Wilson's expert report. My resume follows the main body of this report.

3. Economic Benefit: Context, Theory, and Methodology

In this section, I explain economic benefit's context, theory, and methodology. In the section after this one, I summarize and then provide my economic benefit calculations.

a. Context

According to the expert report of Mr. Bill Wilson, in order to have complied with the opacity limits in its Clean Air Act operating permit beginning in 1999, Mountain Cement should have installed a baghouse at Kiln #2. By failing to do so in a timely manner, Mountain Cement benefitted from delaying the investment in the capital equipment and installation costs, from delaying the loss in profits from a temporary production shutdown, and from avoiding entirely over the period of noncompliance the necessary operation and maintenance costs. With the funds that should have been expended for on-time compliance, Mountain Cement could have invested in financially productive ventures at its plant, provided greater returns to its parent Eagle Materials, and/or reduced its parent's borrowings.

b. Theory

When an entity such as Mountain Cement delays or avoids compliance with environmental requirements, an economic benefit occurs from the delay or avoidance. By postponing compliance, Mountain Cement realized a benefit from delaying investing in capital equipment, delaying production losses during the installation process, and avoiding paying certain necessary operating and maintenance costs.

Economic benefit represents the financial gains that accrue through such delayed and/or avoided expenditures. Funds not spent on environmental compliance are available for financially productive economic activities or, alternatively, a defendant avoids the costs associated with obtaining additional funds for environmental compliance.¹ Economic benefit estimates the amount by which a defendant is financially better off from not having complied with environmental requirements in a timely manner. Economic benefit is "no fault" in nature: a defendant need not have deliberately chosen to delay compliance (for financial or any other reasons) – or in fact even have been aware of its noncompliance – for it to have accrued the economic benefit of noncompliance.

¹ The concept that the true cost of any action can be measured by the value of the alternative that must be foregone is known in economics as opportunity cost.

The appropriate economic benefit estimate should represent the amount of money that would make the violator indifferent between compliance and noncompliance.² If a civil penalty fails to recover at least this economic benefit, then Mountain Cement and its parent Eagle Materials will retain a gain from their noncompliance. Because of the precedent of this retained gain, other entities may see an economic advantage in similar noncompliance, and the penalty will fail to deter potential violators. Economic benefit does not represent compensation to the plaintiffs as in a typical “damages” calculation for a tort case, but instead is the minimum amount that Mountain Cement must pay as a civil penalty to the government so as to return Mountain Cement to the position it would have been in had it complied on time.

c. Methodology

The economic benefit calculation incorporates the concept of the “time value of money.” For example, in simple terms, a dollar yesterday is worth more than a dollar today since one had investment opportunities for yesterday’s dollar. Thus, the further in the past the dollar is, the more it is worth in “present-value” terms. The greater the time value of money (i.e., the greater the “discount” or “compounding” rate), the more value past costs have in present-value terms.

To calculate the economic benefit that Mountain Cement enjoyed, I use standard financial cash flow and net present value analysis techniques, based on modern and generally accepted financial principles. First, I calculate the costs of full on-time compliance that Mountain Cement should have incurred in 1999 and the costs of delayed compliance that Mountain Cement is expected to incur later this year, adjusted for inflation and tax deductibility. To compare the on-time and delayed compliance costs in a common measure, I calculate the 1999 present value of both streams of costs, or “cash flows.” I derive these values by discounting the annual cash flows at an estimate of the cost of capital for Mountain Cement over the period of noncompliance. I next subtract the present value of the delayed compliance from the present value of the on-time compliance to determine the initial economic benefit for Mountain Cement as of the date of initial noncompliance in 1999. Then I compound this initial economic benefit forward to the present in 2005, as any penalty will be paid now in 2005 (not retrospectively in 1999).

² This implicitly assumes a 100-percent probability of the company paying that sum of money in the form of a civil penalty. For purposes of this report, I assume a 100-percent probability, and do not address alternative probabilities. (As the probability declines, then the amount of money increases that would make the company indifferent between compliance and noncompliance.)

A civil penalty insufficient to disgorge the entire amount of the economic benefit figure would fail to make a company financially indifferent between compliance and noncompliance. Such indifference is the first step in achieving financial deterrence, which would additionally require an even higher penalty over and above the disgorgement of the economic benefit. For example, if the economic benefit were \$1,000 and the civil penalty only \$700, the company would have a \$300 incentive to violate the law. By contrast, if the civil penalty were exactly \$1,000, the company would come out even, and have no incentive either to comply or not comply (assuming a 100% chance of penalization). Alternatively, if the penalty were \$1,500, the company would have a \$500 incentive to comply.

4. Economic Benefit Calculations and Results

Below I explain how I calculate Mountain Cement's economic benefit of noncompliance. First I describe the inputs to my calculations, then I summarize my results.

a. Inputs

My economic benefit calculations use the following inputs.

- *Noncompliance Date:* I use October 1, 1999 for when Kiln #2's annually recurring operation and maintenance costs should have begun. Mr. Bill Wilson believes that in order to have the baghouse operational by October 1, the construction project should have been executed by January 1. I therefore model the baghouse's purchase, installation, and related costs at the midpoint of this period, i.e., May 15.
- *Compliance Date:* Mr. Wilson estimates that a baghouse for Kiln #2 could be installed in approximately 10 months from the execution of a design and construction contract. I therefore model the installation costs at five months from the present, i.e., November 15. With a baghouse operational 10 months from now, I model the annually recurring operation and maintenance costs as no longer being avoided by April of next year. Should Mountain Cement actually take longer to install the baghouse and make it operational, my economic benefit calculations will underestimate the true eventual gain to the company.

- *Compliance Cost Estimates:* I rely on Mr. Wilson's \$3.5 million estimate for the capital investment necessary for the Kiln #2 baghouse. I use the upper-end figure of his range to compensate for his omission of any site-specific costs that might be necessary for foundations, structural steel, demolition/removal of the existing electrostatic precipitator, or ancillary equipment. Mr. Wilson's opinion is that the baghouse conversion process will also entail a production shutdown for 12 weeks. Mountain Cement's Capital Expenditures Request #03-504, prepared on November 18, 2002 (Attachment 11 to Mr. Wilson's report), assessed the profit loss of previous downtime at \$317,053 for 8,186 tons, or \$38.73 per ton. This represents about \$400,000 per week of downtime (i.e., \$38.73 multiplied by the 10,500 weekly production), or \$4.8 million for 12 weeks. For the annually recurring operation and maintenance costs (which have been avoided entirely over the noncompliance period), I use \$125,000, which represents the midpoint of Mr. Wilson's \$100-150,000 range (after netting out the current costs for the electrostatic precipitator).
- *Inflation Adjustments:* I use the Plant Cost Index (from *Chemical Engineering* magazine) to deflate the baghouse's capital and annually recurring costs back in time. I use the cement commodity series of the Producer Price Index (from the U.S. Bureau of Labor Statistics) to adjust the downtime costs for inflation.
- *Capital Investment Depreciation and Future Replacement:* I use the modified Accelerated Cost Recovery System for the capital investment, which entails a seven-year double declining balance schedule with conversion to straight line. This is the most rapid depreciation schedule that would likely be applied for tax purposes, and thus produces the most conservative economic benefit calculation.³ Instead of the default 15-year useful life the U.S. Environmental Protection Agency typically uses for pollution control equipment, I conservatively use a longer 20-year useful life. At the end of this useful life, I represent the future financial gain from having newer baghouse equipment (i.e., installed in 2005, instead of 1999) by calculating the imputed lease cost that would have been necessary to cover the interim period when the on-time equipment would be worn out yet the delayed-installation equipment will still be operational.

³ Depreciation generates positive after-tax cash flows; the nearer these are to the current date, the lower the net present value of the pollution control expenditures.

- **Tax Rate:** I use the highest U.S. federal marginal corporate tax rate of 35 percent. (The state of Wyoming has no corporate income tax rate.)
- **Present Value Date:** I use a present value date of June 13, 2005, the date of this report's submission. Because any penalty payment would occur after this date, I also provide information on how this economic benefit should be adjusted forward with the passage of time.
- **Discount/Compound Rate:** I use an estimate of the weighted-average cost of capital ("WACC") for Mountain Cement to compound and discount the economic benefit calculation's cash flows. The WACC represents the cost of a company's debt and equity weighted by the value of each source of financing. On average, a company must earn a rate of return that enables it to repay its debt holders (e.g. banks, bondholders) and satisfy its equity owners (e.g., partners, stockholders). Although companies can earn rates in excess of their WACC, companies that do not on average earn returns equivalent to their WACC will not survive (i.e., their lenders will not receive their principal and/or interest payments, and their owners will be dissatisfied with their returns). As a result, the baseline practice is for a company to make business decisions by discounting cash flows at its WACC (where the cash flows at issues are similar to those of the company's existing lines of business). Therefore, the WACC represents the return that would be expected to be earned on monies not invested in pollution control, or, viewed alternatively, represents the avoided costs of financing pollution control investments. As shown below, I calculate the cost of capital for each year from 1999 through 2004, and then use an average of these years' estimates as the rate to discount and compound all cash flows throughout my economic calculations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Cost of	Tax	After-Tax	Debt	5-Year		Intermediate	(6)x(7)	(5) + (8)	100% - (4)	(3)x(4)+(9)x(10)
Year	Debt	Rate	Debt Cost	Weight	Treasury	Beta	Horizon	Company	Equity	Equity	Rate; Avg =
					Notes		Risk Premium	Risk Prem.	Cost	Weight	9.6%
1999	7.0%	35.0%	4.6%	0%	5.55%	0.70	8.4%	5.9%	11.5%	100%	11.5%
2000	7.8%	35.0%	5.1%	0%	6.16%	0.70	8.5%	6.0%	12.2%	100%	12.2%
2001	5.4%	35.0%	3.5%	46%	4.56%	0.70	8.2%	5.7%	10.3%	54%	7.2%
2002	3.1%	35.0%	2.0%	23%	3.82%	0.80	7.8%	6.2%	10.0%	77%	8.2%
2003	2.3%	35.0%	1.5%	6%	2.97%	0.85	7.4%	6.3%	9.3%	94%	8.8%
2004	2.6%	35.0%	1.7%	6%	3.43%	0.90	7.6%	6.8%	10.2%	94%	9.7%

(1) Interest rate on property note for 1999; for subsequent years, weighted-average interest rate on parent company's bank debt.

(2) Federal 35% marginal corporate tax rate.

(3) Calculated as: (1) * (100% - (2)). [Adjusts for tax-deductibility of interest payments.]

(4) Long-term debt (as of 31-Mar) divided by sum of debt plus market equity (based on average of high & low share price applied to shares outstanding).

(5) Federal Reserve. [Used as a proxy for the risk-free rate in the Capital Asset Pricing Model (CAPM).]

(6) Reported by Value Line for parent company. [Beta measures risk relative to overall stock market (=1.00).]

(7) Differences of avg returns between stock market and 5-yr T-notes, 1926 - present, as reported by Ibbotson Associates.

b. Results

Based on the inputs described above, my opinion is that Mountain Cement has gained an economic benefit of approximately \$4.4 million. This economic benefit is calculated as of when this report is to be submitted, i.e., June 13, 2005. As the penalty payment is delayed beyond June of 2005, this economic benefit figure will continued to grow at over \$34,000 per month. The detailed (and replicable) worksheets for all of these calculations follow below.

<u>Present Values as of on-time installation period midpoint,</u>	<u>15-May-1999</u>
On-Time Baghouse Capital & Shutdown- Initial Installation	\$5,148,978
Initial Installation- Imputed Lease Cost	\$275,265
Delayed Baghouse Capital & Shutdown	-\$3,308,538
Avoided Annually Recurring Costs	\$421,235
Initial Economic Benefit	\$2,536,942

13-Jun-2005 \$4,431,544

Monthly increase at current estimate of cost of capital: \$34,321

On-Time Baghouse Capital & Shutdown	199.7	389.2	= PFI (current) & PCI values (respectively) for inflation adjustments						
<u>Initial Installation:</u>	15-May-1999	15-Nov-1999	15-Nov-2000	15-Nov-2001	15-Nov-2002	15-Nov-2003	15-Nov-2004	15-Nov-2005	15-Nov-2006
Lost Net Variable Profit- Conversion Process	(4,413,912)								
Capital-Baghouse to KIR #2	(3,111,799)								
Depreciation	0	(444,676)	(762,080)	(944,254)	(988,664)	(277,864)	(277,573)	(277,864)	(138,786)
Net After-Tax Cash Flow (at 35%)	(8,950,847)	135,637	266,728	190,489	136,032	97,259	97,180	97,259	48,575
PV Factor Adjusts Cash Flow to NCD	1.0000	0.9548	0.8710	0.7947	0.7251	0.6616	0.6035	0.5506	0.5024
PV Cash Flow as of NCD	(5,950,847)	148,605	232,316	151,381	98,635	64,344	58,628	53,553	24,404
	MACRS	14.29%	24.49%	17.49%	12.49%	8.93%	8.92%	8.93%	4.66%
<u>Imputed Lease Cost:</u> Future-period gain from when on-time baghouse would have required replacement yet delayed baghouse will still be functional					Start Date 15-May-2019	End Date 15-Nov-2025	Years 6.5	Capital Cost (4,812,014)	Annual Lease (549,865)
Total Imputed Lease Cost	(3,574,120)								
Net After-Tax Cash Flow (at 35%)	(2,323,175)					20 = useful life estimate		Baghouse cost projected nine years into the future at 2.3%, reflecting average of OMB and CBO CPI projections	
PV Factor Adjusts Cash Flow to NCD	0.1185								
PV Cash Flow as of NCD	(275,265)								
Delayed Baghouse Capital & Shutdown	199.5	408.2	= most recently reported PFI (current) & PCI values (respectively) for inflation adjustments						
(lost profits reflect 153.5 Nov-2002 PFI (current) value)	15-Nov-2003	15-May-2006	15-May-2007	15-May-2008	15-May-2009	15-May-2010	15-May-2011	15-May-2012	15-May-2013
Lost Net Variable Profit- Conversion Process	(5,300,326)								
Capital-Baghouse to KIR #2	(3,500,000)								
Depreciation	0	(500,150)	(837,150)	(612,150)	(437,150)	(312,550)	(312,200)	(312,550)	(156,100)
Net After-Tax Cash Flow (at 35%)	(6,945,212)	175,053	300,003	214,253	153,003	109,393	109,270	109,393	54,635
PV Factor Adjusts Cash Flow to NCD	0.5506	0.5261	0.4801	0.4379	0.3995	0.3645	0.3326	0.3034	0.2768
PV Cash Flow as of NCD	(3,824,152)	92,104	144,020	93,822	61,132	39,379	36,345	33,191	15,125
Avoided Annually Recurring Costs									
PCI mid-point value:	391.9	363.7	395.3	397.7	401.3	442.6	468.2	478.5	
Period of Avoided Annual Costs: From:	01-Oct-1998	01-Jan-2000	01-Jan-2001	01-Jan-2002	01-Jan-2003	01-Jan-2004	01-Jan-2005	01-Jan-2006	
To:	31-Dec-1998	31-Dec-2000	31-Dec-2001	31-Dec-2002	31-Dec-2003	31-Dec-2004	31-Dec-2005	15-Apr-2006	
Operation and Maintenance Costs Avoided	(104,629)	(105,110)	(105,537)	(106,178)	(107,138)	(118,166)	(125,000)	(127,750)	
Net After-Tax Cash Flow	(68,009)	(68,321)	(68,589)	(69,016)	(69,540)	(76,807)	(81,250)	(83,037)	
PV Factor Adjusts Cash Flow to NCD	0.9547	0.9014	0.8223	0.7503	0.6846	0.6246	0.5687	0.5371	
PV Cash Flow as of NCD	(64,930)	(61,582)	(56,410)	(51,781)	(47,673)	(47,908)	(46,232)	(44,586)	

5. Economic Impact of a Penalty

To assess the economic impact that a penalty payment would have on Mountain Cement and its parent Eagle Materials, I provide an overview of the scale of their financial operations. First, the table below presents selected financial indicators of the parent company Eagle Materials for the past two fiscal years (ended March 31).

EAGLE MATERIALS SELECTED FINANCIAL INDICATORS (in millions)			
Indicator	2005	2004	2003
Cash and cash equivalents	\$7.2	\$3.5	\$6.8
Total current assets	\$141.7	\$106.8	\$98.1
Property, plant, and equipment	\$823.7	\$715.7	\$709.0
Total assets	\$780.0	\$693.0	\$706.4
Revenues	\$616.5	\$502.6	\$429.2
Earnings before Income Taxes	\$158.1	\$102.1	\$86.6

The cement operations of Eagle Materials are the eleventh largest in the U.S., representing 2.3 million tons of production capacity according to the company's 2004 annual report. The company has sold out its production capacity for the last 19 years. During the 2005 fiscal year (ended March 31, 2005), Eagle Materials recorded its highest-ever average net sales cement price. The company cites record demand for cement according to the U.S. Geological Survey, contributing to sales price increases of five to eight dollars per ton in all of its cement markets as of April 1 of this year. Detailed financial results are not available for the Mountain Cement subsidiary, but in fiscal year 2004 it accounted for almost one third of the total cement production capacity for Eagle Materials.

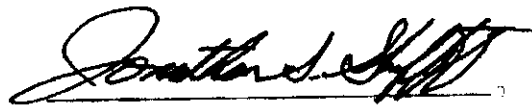
Based on all of the above, I conclude that a penalty amount in the range of the economic benefit results would still be small relative to the scale of operations of Mountain Cement and its parent Eagle Materials, and that such a penalty would not have a significant adverse economic impact.

6. Qualifications and Compensation

As previously noted under the section entitled Basis for Opinion, following the main body of this report is my resume, which also provides a list of publications and testimony experience. My firm (Industrial Economics, Incorporated) receives compensation of \$107 per hour for the time that I have spent preparing this report, and for testimony would receive \$154 per hour.

I declare under the penalty of perjury that the statements in this report are true and accurate to the best of my knowledge.

6-12-05
Dated


Jonathan S. Shefftz

JONATHAN S. SHEFFTZ

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Mr. Shefftz is a Senior Associate with Industrial Economics, Incorporated (IEc), where he specializes in the application of financial economics to litigation disputes, regulatory enforcement, and public policy decisions. Since joining IEc in 1992, Mr. Shefftz has acquired extensive experience in settlement and litigation support, and has been qualified as an expert witness in Administrative Court and U.S. District Court.

Mr. Shefftz's recent experience includes work in the following areas.

- Calculating the economic damages suffered by companies and individuals from alleged wrongful actions.
- Applying financial economics to civil penalty factors in regulatory enforcement actions.
- Analyzing economic issues related to public policy decisions.

Mr. Shefftz has performed this work in a variety of contexts, including expert witness testimony, computer model development, training course delivery, and regulatory review, as well as reports and memoranda. He has supervised project teams comprising economists, accountants, paralegals, and software developers, as well as worked in parallel with engineers, scientists, lawyers, and lobbyists. His clients have included federal and state governmental agencies, private litigators, and other private-sector entities.

Mr. Shefftz holds a B.A. *magna cum laude* and *Phi Beta Kappa* in Economics and Political Economy from Amherst College, and an M.P.P. degree, with concentrations in Government & Business and Energy & Environmental Policy, from the John F. Kennedy School of Government at Harvard University.

Mr. Shefftz's professional memberships include the National Association of Forensic Economics, the Government Finance Officers Association, and the Western Economics Association International.

JONATHAN S. SHEFFTZ

Economic Damages

Breach of Contract

For the U.S. Department of Justice (DOJ) Civil Division and the U.S. Department of Agriculture, Mr. Shefftz critiqued timber product companies' damage claims for an alleged breach of contract arising from U.S. Forest Service implementation of Congressional legislation.

Personal Injury

For a private law firm, Mr. Shefftz calculated the economic damages suffered by employees and their households as a result of an industrial accident. He also critiqued the plaintiffs' reports' income projections, taxation treatments, worklife expectancies, benefit assumptions, and discount rates.

Groundwater Contamination

For a private landowner, Mr. Shefftz analyzed the diminution in real estate development value from groundwater contamination, projecting the development schedule with the contamination-induced delay vs. the original schedule. For a U.S. territory, Mr. Shefftz estimated the present value of future expenses for a proposed desalination plant to replace contaminated groundwater sources.

Federal Contract Disputes Act

Mr. Shefftz developed a DOJ computer application to calculate interest accruing on damage claims.

Regulatory Enforcement

Financial Gain / Economic Benefit / Unjust Enrichment

Mr. Shefftz has modeled companies' cash flows under hypothetical timely compliance scenarios vs. actual delayed compliance scenarios to calculate the economic benefit (i.e., financial gain or unjust enrichment) on numerous enforcement actions brought by the U.S. Environmental Protection Agency (EPA), Department of Justice (DOJ), private litigators, and state Attorneys General. He has been qualified as an expert witness in both Administrative Court and U.S. District Court.

Financial Statement Analysis / Ability-to-Pay Assessment

Mr. Shefftz has examined the finances of individuals, businesses, municipalities, and not-for-profits to assess ability to pay for environmental expenditures sought by EPA, DOJ, private litigators, and states. He has been qualified as an expert witness in Administrative Court and U.S. District Court.

Computer Model Development, Training, and Support

Mr. Shefftz has managed the development of the current versions of the five computer models that EPA's Office of Enforcement and Compliance Assurance applies to financial economics issues in enforcement actions. He has prepared the models' help systems and training materials, as well as presented training courses and provided related support for federal and state enforcement staff.

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Public Policy

Cost of Capital Estimation

Mr. Shefftz assessed peer reviewer comments and then revised a draft report on cost of capital estimation for water systems. His work included applying the capital asset pricing model to the commercial drinking water industry and correcting for the earlier draft's assumptions regarding capital structure and industry-level business risk.

Joint Cost Allocation

For a study of Bureau of Reclamation rate setting for California's Central Valley Project, Mr. Shefftz researched economically efficient methods for allocating water project costs to user classes.

Proposed Legislation

For an industry association, Mr. Shefftz designed and implemented a survey and analyzed its results to predict the impacts of a proposed national lead tax upon lead consumption and dependent industrial sectors. For a national waste management firm, he analyzed the financial impacts of a proposed state tax on hazardous waste land disposal.

Superfund Impacts

Mr. Shefftz examined the Department of Energy SURE model's predictions of economic impacts from Superfund liability and cost allocation reform. At a Superfund site, he critiqued a small city's claims that a proposed contaminated soil cleanup would lead to widespread economic disruptions.

Legislative Review

For the 1990 Clean Air Act amendments, Mr. Shefftz investigated the potential of fuel oxygenation requirements to cause plant closures in the petroleum refining industry. For the Safe Drinking Water Act, he reviewed EPA's national-level drinking water affordability criteria and their implications for the finances of small water systems.

JONATHAN S. SHEFFTZ

Publications and Presentations

Lost Profit as a Measure of Lost Earning Capacity, panel discussion at Western Economics Association International Annual Conference (San Francisco CA), July 7, 2005 (scheduled).

"EPA's Economic Benefit Analysis Policy and Practice," *Natural Resources and Environment*, Fall 2004.

"Taxation Considerations in Economic Damages Calculations," *Litigation Economics Review*, Summer 2004.

Economic Benefit and Wrongful Profits in the Calculation of Penalties for Environmental Violations, presentation to Boston Bar Association Environmental Litigation Committee, September 23, 2004.

Business Valuation / Commercial Damages, panel discussion at Western Economics Association International Annual Conference (Vancouver BC), July 1, 2004.

"Wrongful Profits: Setting the Record, and the Concept, Straight," *Environment Reporter*, January 2, 2004.

Present Value Sensitivity to Ex Ante vs. Ex Post Perspective, presentation at Western Economics Association International Annual Conference (Denver CO), July 12, 2003.

Taxation Considerations in Economic Damages Calculations, presentation at Eastern Economics Association Annual Conference (New York NY), February 22, 2003.

Economic Benefit from Illegal Competitive Advantage and Complex Economic Benefit Scenarios, presentation at U.S. EPA Fifth Financial Analyst Workshop (Boston MA), July 26, 2000.

Economic Benefit in Wetlands Cases: Financial Analysis Issues, presentation at U.S. EPA Wetlands Enforcement Conference (Alexandria VA), March 22, 2000.

Economic Benefit, presentation at U.S. EPA Fourth Financial Analyst Workshop (Denver CO), March 10, 1999.

JONATHAN S. SHEFFTZ

Testimony History

State of Ohio v. Container Recyclers, Inc. (Franklin County Municipal Court, Environmental Division), deposition testimony, April 1, 2005.

In the matter of Vico Construction Corporation and Smith Farm Enterprises (U.S. EPA Administrative Hearing), courtroom testimony June 20, 2002 and October 8, 2003.

U.S. v. The New Portland Meadows, Inc. (USDC, Oregon), courtroom testimony May 20, 2003.

In the matter of Vico Construction Corporation and Amelia Venture Properties (U.S. EPA Administrative Hearing), courtroom testimony January 14, 2003.

United States Public Interest Research Group, Stephen E. Crawford, and Charles Fitzgerald v. Heritage Salmon, Inc.; U.S. PIRG et al. v. Stolt Sea Farm, Inc.; U.S. PIRG et al. v. Atlantic Salmon of Maine LLC (USDC, Maine), deposition June 5, 2001 and courtroom testimony October 15, 2002.

U.S. v. Murphy Oil USA, Inc. (USDC, WD Wis.), deposition April 24, 2001.

U.S. v. Royal Oak Enterprises, Inc. (USDC, ED Va.), depositions March 22, 2000 and May 19, 2000.

U.S. v. Gulf States Steel, Inc. (USDC, ND Ala.), affidavit December 30, 1998 and deposition October 22, 1999.

U.S. v. Koch Industries, Inc. (USDC, ND Okla. and SD Tex.), depositions May 24, 1999 and June 1, 1999.

State of Wisconsin v. I-K-I Manufacturing Company, Inc., deposition April 13, 1999.

U.S. v. Borden Chemicals & Plastics (USDC, MD La.), deposition February 5, 1998.

State of New Hampshire v. Johnson Products, Incorporated, deposition February 3, 1998.

In the matter of Ekco/Glaco, Ltd. & EK Management Corporation (U.S. EPA Administrative Hearing), courtroom testimony August 14, 1997.

U.S. v. Smithfield Foods, Inc., et al. (USDC, ED Va.), deposition July 9, 1997.

U.S. v. Nucor Corporation (USDC, ND Ala.), deposition June 12, 1997.

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